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BUREAU
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WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

GPO 123668

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REPORT FOR THE WEEK ENDING MAY 4, 1940.

HAVRE:

The week was quite variable with respect to temperatures. Three days had minima of 32°, whereas the maxima recorded on the last three days averaged 75°. Wind movement was high on May 1 and 3.

Routine dates of planting were made, including small grains in the fertilizer project, wheat, safflower, flax, and sweetclover. Forages were also seeded. Cultivation of all plots in the D.L.A. field was completed and seedings of spring wheat and sweetclover rotations were made. The first cultivation of grasses and alfalfa in rows was begun. The first date of seeding small grains emerged with uniform stands during the week. Winter wheat is making good progress.

Weeds were burned and strips were seeded in field C. The recently plowed-up alfalfa fields were worked down in preparation for seeding. Work is progressing on the ground beautification project. Two hundred and fifty Colorado Blue spruce were planted in a nursery adjacent to water. With warmer temperatures, native pastures have shown marked improvement.

Mr. A. H. Post of the Agronomy Department, Montana Experiment Station, made a planting during the week to test the effect of various rates of commercial fertilizer on small grains.

Maximum temperature, 82°; minimum, 32°; precipitation, trace.

JUDITH BASIN:

The weather during the past week was ideal for field work, making tillage and seed bed preparations possible. The rotations are ready for seeding early next week if the weather permits.

Dr. R. H. Bamberg and Mr. Orlie Smith of the Division of Cereal Crops and Diseases from Bozeman arrived Friday and proceeded to plant their material in the nurseries and varietal plots.

Professor A. H. Post of the Agronomy Department of the Montana State College was also a visitor and planted the wheat fertilizer experiment, using the lower rates of ammonium and treble superphosphates. Professor Post is cooperating in three other areas in the State.

Maximum temperature, 78°; minimum, 29°; precipitation, 0.08 inch.

HUNTLEY:

Week-end showers again wet the ground to an extent that field work was held up until the middle of the period. Seeding and tillage operations were resumed on May 1 and good progress has been made since then. Higher temperatures have been beneficial to all crops, with winter wheat, grass, and alfalfa showing the greatest advancement. Spring grains and flax are coming up but stands are as yet incomplete.

Soil samples taken during the week show greatly improved moisture conditions, especially in stubble land. Moisture penetration April 1 was 6 to 8 inches deep in plots cropped to small grains last year, and on May 1 this depth had increased to 14 to 18 inches. This amount should insure a good seedling growth, but better than normal seasonal precipitation will be needed to produce a worth while crop.

Maximum temperature, 83°; minimum, 32°; precipitation, 0.25 inch.

SHERIDAN:

Following two light showers during the first three days, the remainder of the week was fair, with temperatures considerably above the seasonal average. Land intended for flax was either plowed or duckfooted, shelterbelts and the orchard were cultivated, and field operations generally brought up to date for the season for the first time since the first of April.

All vegetation made good progress. The remainder of the grain in the rotations, and the varieties of spring grain, emerged with good stands generally.

Total precipitation for April was 4.17 inches, nearly twice the station average, with no noticeable run-off except on roadways. This was second to the previous high for April, 5.83 inches in 1925, and the 6th highest recorded on the station for any one month. Temperatures were slightly below average over the first half of the month, and somewhat above for the last half, about 1° low for the entire month.

Maximum temperature, 79°; minimum, 33°; precipitation, 0.56 inch.

DICKINSON:

Heavy rains on Saturday night and Sunday morning amounted to 1.70 inches and brought the total for April to 5.02 inches. This sets a new record for April, the previous high being 3.6 inches in 1892, the year weather records were started at Dickinson.

At the station there was practically no run-off during these heavy rains. Near South Heart, 12 miles away, where the rain was measured at more than 4 inches Saturday night the Heart River flooded extensively and some damage was done to fields and bridges.

Warmer weather toward the end of the week resulted in excellent growing conditions, but all vegetation is still backward. Wheat, oats, and barley planted in the rotations April 17-19 are beginning to emerge.

Cobbler potatoes were planted in the rotations May 3. Increase blocks of Pilot 13 wheat, Spartan barley, and Boone oats were drilled May 3. Grimm and Ladak alfalfa were seeded in forage trials on May 2. Blocks of hackberry and seedlings of native cedar and ponderosa pine were lined out, all from stock received from the Northern Great Plains Field Station.

Seeding of small grains on farms through the district is now about 80 percent completed. On clay and gumbo soils only about half has been put in, and farmers report this to be the latest date of seeding of their experience.

Some flax was seeded on crested wheatgrass sod. Following the heavy rains this was worked into an excellent seedbed by double disking twice and harrowing twice.

Maximum temperature, 75°; minimum, 25°; precipitation, 1.72 inches.

MANDAN:

Arboriculture: Conifer rows in the main windbreak have been replanted with cedar stock. Honey locust, American elm, and Chinese elm seed has been planted. Mulch has been removed from cedar beds planted in the fall of 1939. A good stand appears to be emerging. The heavy rains have crusted the soil badly and washed considerable soil over planted seed in nursery fields, which may make emergence difficult.

Horticulture: Raspberries, grapes, and buds have been uncovered. It appears that there will be a good stand from the budding of last August. A number of trees were potted for breeding work. Tree growth is now starting;

encouraged by the warm weather of the past few days and good soil moisture conditions. Present indications are that but little winter injury will be recorded when June 1 notes are taken.

The heavy rains over the weekend caused some erosion in the acre garden, and reseeding of part of the early planted vegetables was necessary. With all the moisture in the ground, a good germination and stand is looked for this spring. The season is still backward and the buds are slowly swelling. Uncovering of semi-hardy shrubs and raking of lawns has been in progress during the week.

Agronomy: Heavy rains during the week delayed all field work until May 1.

Rain started the night of the 27th and 0.61 inch was recorded the morning of the 28th. This rain came slowly and practically all of it soaked into the soil. The rain continued through the 28th and part of the 29th. On the 28th rain fell harder and was accompanied by a high wind. On the morning of the 29th 1.96 inches were recorded. This hard rain packed the soil and a great deal of run-off took place, causing heavy washing of soil in some places. Some damage from washing was done in both the main and south fields. The rain continued during part of the 29th and was followed by about 2 inches of wet snow. The precipitation on the morning of the 30th was 0.48 inch.

The heavy rain packed the soil so much that it was necessary to harrow all plots as soon as the soil was dry enough. This harrowing included seeded and unseeded plots. This is the first time in the history of the station that a heavy rain made such an operation necessary. The moisture seemed to soak into the prairie soil better than into cultivated fields.

Plowing for flax has been completed. Barley and flax were seeded on the 3rd and 4th, and oats seeded in field P. Wheat that was seeded on April 19 is just coming through the ground.

Recent rains will be of much benefit to range and cultivated grasses, and will go a long way toward the assurance of good pasture.

The total precipitation for April was 4.24 inches. This is the highest amount for April during 27 years of station record, and the second highest of 66 years of record in this locality.

Maximum temperature, 72°; minimum, 26°; precipitation, 3.05 inches.

BELLE FOURCHE:

Cool weather prevailed during the first half of the week, but the last three days were warm and favorable to plant growth. Precipitation was limited to the small amount recorded April 28 in the final hours of the heavy rain which commenced April 27. The precipitation for April, 2.97 inches, was 1.44 inches in excess of the 32-year average for the month, and it is the third greatest of record for April. The total precipitation for the year to date is 5.05 inches. This is 1.97 inches above the average, and it is also the third greatest of record for the 4-month period. Moisture, however, has penetrated the soil to a depth of only 12 to 18 inches.

All crops seeded April 19 and 20 are beginning to come up, but a heavy soil crust, which formed following the recent rain, is seriously interfering with the emergence of grass, alfalfa, sweetclover, and flax. Established crested wheatgrass, bromegrass, and alfalfa made exceptionally good growth, and native pastures and ranges have become quite green. Fall grain is making normal progress.

Visitors included Paul Evans, R. A. Phillips, and Glen A. Avery, Soil Conservation Service, Rapid City; A. F. Sorensen, and C. D. Sanders, Soil Conservation Service, Fort Meade.

Maximum temperature, 79°; minimum, 30°; precipitation, 0.18 inch.

ARCHER:

The weather during the first half of the week was cold and threatening, but during the latter half it was warm and clear. Precipitation during April totaled 1.74 inches which is the same as the 27-year average.

Plant growth was slow during April but during the last few days it has been rapid. All field crops that have been seeded have emerged or are emerging. Native grasses have made an early start. Grama grass has sent out its first shoots. The sheep and dry dairy stock are on pasture.

Station work consisted of repairing fences, repairing roads, and taking soil moisture samples.

Director W. L. Quayle of the University of Wyoming and Wayne W. Austin of the Soil Conservation Service were station visitors.

Maximum temperature, 82°; minimum, 28°; precipitation, 0.34 inch.

NORTH PLATTE:

A light shower on Monday was the only precipitation recorded for the week. Nearly every other day was windy and there was considerable soil movement from unprotected fields. The total precipitation recorded at the table station for April was 0.91 inch. This is 1.24 inches below the average for this month. The total deficit since January 1 is 1.22 inches. Since August 7 of last year no precipitation of over 0.30 inch has been recorded for any 24-hour period. Since September 1 there has been an accumulated deficit of 3.41 inches.

Although the eastern half of the State has received several good rains this spring, there is shortage of moisture in the western sections particularly in the area around North Platte. The wheat on the station is beginning to show the effects of the shortage of moisture. It will require an above normal precipitation during May and June to make a small grain crop. Mr. Brouse of the Valentine Station reports that in his section of the State over 5 inches of precipitation has been recorded since January 1 and that on cropped land moist soil can be found to a depth of about 3 feet.

The Spring Feeders' Day was held at the station on Saturday with a record crowd of about 800.

Maximum temperature, 80°; minimum, 36°; precipitation, 0.03 inch.

COLBY:

Severe soil blowing prevailed the first part of the week, but the last part was mostly fair. It has been cloudy and threatening much of the time, but almost no moisture has fallen. Monday and Tuesday were unusually chilly, but the temperature did not get down to freezing.

All crops are making fair growth. The winter wheat that did not come up until this spring is not improving appreciably. As yet, however, it seems to be fairly free of weeds. The winter wheat that got started last fall has made excellent growth but is beginning to show that darkish color indicative of a shortage of moisture. Nearly all summer fallow fields have been worked once to conform to the A. A. A. program and are generally clean. The thistles which have been blowing back and forth across the country the last two weeks have scattered seed everywhere, so that some

of the ground worked earlier is getting weedy again.

Precipitation for April, 0.90 inch; 53-year average, 2.00. Precipitation, January - April, 1940, 3.98; 53-year average, 3.77 inches.

Maximum temperature, 82°; minimum, 36°; precipitation, 0.12 inch.

HAYS:

Temperatures were mild and spring-like and there was less wind than during the past few weeks.

Generous local rains have fallen in nearby vicinities, but only light showers occurred at Hays.

The spring small grain crops are making normal growth, and the winter wheat is also making some progress.

During the week it was necessary to cultivate for the destruction of weeds all the plots that are to be planted to row crops.

Maximum temperature, 82°; minimum, 35°; precipitation, 0.22 inch.

GARDEN CITY:

Only a trace of moisture fell during the week. The total for the month of April was 0.80 inch, the average is 1.61 inches. Rather heavy rains fell east of here April 28. The average maximum temperature was slightly above the long-time average. Average wind velocity was 11.3 miles per hour while the long-time average is 10.6 m.p.h. There were five days during the week when dust was in the air, two of which were termed "bad" storms. There were 12 dusty days during April, 4 of which were "bad", as compared with 10 dusty days in April 1939, two of which were "bad".

The soil has dried out considerably, and the spring small grains are beginning to show signs of moisture deficiency.

Field work consisted of cultivating plots which were weedy and plowing and listing as scheduled.

Station visitors were J. B. Tuck, Bureau of Entomology, and C. O. Grandfield, Division of Forage Crops and Diseases, Manhattan, Kansas.

Maximum temperature, 86°; minimum, 35°; precipitation, trace.

TUCUMCARI:

The week had normal wind movement with unusual heat at the close. No precipitation was received, and since only 0.73 inch has fallen since the first week in March, ranges and trees show need of rain. Favorable late winter prospects have changed rapidly the past month.

In spite of dry soil at planting time and very late germination of seed, many wheat fields in the southern portion of the county indicated prospects of a fair crop a month ago. A very heavy Pale Western cutworm attack the past few weeks has completely ruined many fields. Farmers state "the county won't make seed enough to seed back".

No field work has been performed the past week, but cultivation prior to planting will begin when rain occurs. Work has included late pruning of orchard, shade, and windbreak trees where drought had killed many branches, and watering and hoeing of young trees. Evergreens were sprayed to combat a very heavy red spider attack.

Maximum temperature, 93°; minimum, 37°.

DALHART:

No precipitation was received during the week. The precipitation for the year is now only about half of the average for the period.

Dead wood was pruned out of trees where necessary. The luxuriant growth in the spring of 1939 which was stimulated by a good soil moisture supply was checked so severely by the drought in the latter part of the growing period that top growth on the trees in the drier locations was injured. This damage was not visually apparent last fall, but the killing was severe on many of the larger trees, especially in the trees along the south fence.

Oats and barley, except for a few plots where sand could blow across them, continues alive but with very slow growth. Barley seeded early in February is reported to have used practically all available moisture. The surface soil on the station is dry. One difference showing up this spring over the immediately preceding years is the fact that thistles are coming on roughened land. Heretofore the soil movement has been so severe that thistle growth has been delayed.

The maximum temperature Friday was 95°, which is the highest temperature so far recorded for so early in the year.

Maximum temperature, 95°; minimum, 36°; precipitation, trace.

BIG SPRING:

The first three days of the week wind velocity was high enough to cause considerable soil movement where the fields were not roughed up. Station fields were cultivated with duckfoot and harrow in spots where blowing started.

A few thunderheads appear each day, but they never develop into any thing to break the dry spell. Total precipitation for March and April was 0.64 inch received in several showers. This moistened the surface soil sufficiently for spring plowing, but this soil moisture has since been removed by evaporation. Many ranchers, who stopped feeding when the early weeds began to grow, have had to start again, because the grass has not started yet.

Station work has consisted of disking and harrowing D. L. A. and cooperative fields in preparation for planting.

Messrs. Bell, Savage, and Smith of the Woodward Station and Mr. Gormley of the S.C.S. of Amarillo were Station visitors during the week.

Maximum temperature, 100°; minimum, 53°; precipitation, 0.

LAWTON:

A good rain that covered the State quite thoroughly on April 27 amounted to 0.85 inch on the station, bringing the April total to 4.13 inches. Subsequent weather was favorable to the growth of small grains and the response was good in most instances. Some of the early maturing varieties of oats are fully headed, and most of the wheat varieties are heading with considerable rapidity.

Kafir and feterita were replanted in Field A on May 2. Replanting was necessary because of weak germination and crusted surface soil. However, the first factor was dominant. Nymphs of the first generation of chinch bugs were first observed on May 2, which may be considered a normal date. Indications are that a heavy infestation will cover a large area within the State.

A recent trip of approximately 200 miles over the wheat areas of southwestern Oklahoma revealed a very spotted condition. With the exception of a few isolated areas, yields will be negligible. With favorable temperatures and moisture conditions in May a fair crop of oats may be

expected. The acreage of winter barley is unusually large, but the stands are thin and the crop appears to be at least 10 days late.

Recent station visitors include Messrs. Savage, Bell, and Smith from Woodward.

WOODWARD: (Two weeks ending May 4)

Mostly fair skies, normal temperatures, with scattered showers from the 27th to 29th characterized weather conditions during the past two weeks. Wind movement for the most part was relatively light, although hazy conditions prevailed on several days.

Corn plots emerged with even stands, except where minor damage from moles necessitated reseeding parts of certain rows. Winter rye, spring barley, and winter oats are nearing first heading, and flax is beginning to blossom. Winter wheat now jointing has made fairly rapid progress, however, stands lack uniformity in many instances, which is also typical of a number of fields in this vicinity. Roadways were marked off and alleys cultivated. Various experimental blocks and farm fields have been worked as well as windbreaks, nurseries, and vineyards.

Tree and shrub seeds have been planted in propagation beds, conifers and rooted greenhouse cuttings lined out, and the 1940 portion of the arboretum consisting of large conifer species transplanted by the cylinder method completed. Buffalo grass lawn plantings were made on the campus, and winter killed areas of bermuda grass were replaced.

Tomatoes in the variety, fertilizer, and selection plots have been set out. Turnips for the regional nutrition project cooperative with the Oklahoma Experiment Station were reseeded owing to failure of the first planting. Iris are again blooming after being checked by the mid April freeze.

Grass seedings were much benefitted by recent showers and fair to excellent stands have emerged, the degree of emergence depending upon the amount of crop residue present. The only failures observed to date were on cleanly tilled land where soil crusting has been pronounced following torrential rains after planting.

Maximum temperature, 89°; minimum, 44°; precipitation, 0.59 inch.

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MAY 11 1940

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REPORT FOR THE WEEK ENDING MAY 11, 1940.

HAVRE:

The week was ideal for vegetative growth, good rains occurring the first part of the week, followed by warm weather and only moderate wind movement. Precipitation since January 1 has totaled 5.01 inches, which is practically twice the average for the same period.

Field work was held up Monday and Tuesday by wet ground, but cultivation and seeding have continued without interruption since that time. Nurseries and varieties were seeded, and miscellaneous dates of seeding also made. Uniform emergence has been noted on earlier sown spring grains. Potatoes were planted in the rotation field.

Weeds were raked and burned from two subirrigated alfalfa fields, and thin parts were lightly cultivated and drilled with Ladak alfalfa seed. Other smaller parts were reseeded by hand. Cultivation of registered dry-land alfalfa in rows was begun. The strips in the contour field were sown with Marquis wheat. Lawns were sown and 250 Caragana were planted in connection with the W.P.A. beautification project. All pipe which is believed necessary has now been salvaged and is ready to be relaid for irrigation.

A summary of the 1939-40 individual winter feeding trials is now being compiled. As this year concluded the plane of nutrition and type work which had been carried out at this station for the past several years, it is also being summarized. Calving is now almost completed with 90 calves being dropped to date, so the cow herd was removed from the calving pasture and will soon be taken to the summer range in the Bear Paw Mountains.

Mr. Earle A. Cole and Herbert Erickson of Soil Conservation Service spent several days at the station, making further survey of contour stripped Field E. It was decided that to control effectively erosion from melting of snow it would be necessary to build on the south half of the field where the slopes are quite steep. Five such terraces were completed. Dikes were also built on the west and east sides to keep foreign water out of the field.

Maximum temperature, 87°; minimum, 36°; precipitation, 1.37 inches.

JUDITH BASIN:

Weather during the past week was ideal for field work, and seeding of small grains in the rotations has progressed throughout the week. Bulk field seed beds have been prepared and will be seeded as soon as possible.

The steers for the native and bromegrass pastures were weighed on three consecutive days, and the animals were placed on their pastures on Wednesday. The two crested wheatgrass groups which have been on pasture for two weeks were also weighed on Wednesday.

Other field work has included raking and burning weeds, and cultivation of alleys and shelterbelts.

Maximum temperature, 78°; minimum, 30°; precipitation, 0.31 inch.

HUNTLEY:

Although the minimum temperature for the week was below freezing, nearly every day was bright, warm, and more or less windy, rapidly drying out newly prepared seedbeds on some fields to the extent that rain or irrigation will be necessary to supply moisture for germination. Crops that have emerged have made good progress as a result of higher temperatures, with winter wheat and alfalfa showing the greatest advancement. The last of the spring grains and flax have come up, and stands appear to be excellent on all plots. The stands of flax are especially good as the seedlings were not hampered by soil crusting as they have been some years.

Work on the dry-land fields included the preparation of cornland, plowing of early fallow, spot seeding of row alfalfa, fencing annual-crop pastures, and some cultivation of roads and alleys.

Maximum temperature, 86°; minimum, 31°; precipitation, trace.

SHERIDAN:

Except for one day, fair weather prevailed over the entire week. Three days were cool and morning temperatures were 32° F. or below on 4 days, but the mean temperature for the week was considerably above the station average. Wind movement was high also.

With favorable growing conditions, all crops made good progress. Spring seedings of grass have generally emerged with good stands where drilled, but stands are poor where broadcast. With alfalfa the broadcast stands are best to date.

Good progress was made with field work throughout this section. On the station, the first tillage for corn and late crops was completed with the exception of one or two miscellaneous pieces of ground. Flax in the rotations and varieties, and a date of seeding that crop and other spring grains were sown, and a date of planting corn was planted.

Maximum temperature, 83°; minimum, 30°; precipitation, 0.09 inch.

DICKINSON:

Cool weather continued until near the end of the week when temperatures rose to a maximum of about 85° at noon Saturday. Light frost was recorded on the morning of the 8th, but no effect was noted on vegetation.

Wheat, oats, barley, and peas have emerged with good stands on all plots. Flax and millet were seeded on the rotations. Potato varieties are being planted today.

Cool weather was favorable for grains and grasses. Fruit and other vegetation have developed slowly. The first blossoms opened on the flowering almond on May 9. None of the other fruits had started blooming.

Early garden varieties were planted. Asparagus and rhubarb were used from the garden during the week.

Director H. L. Walster visited the Station on May 10.

Maximum temperature, 85°; minimum, 30°; precipitation, 0.19 inch

MANDAN:

Arboriculture: Transplanting of coniferous seedlings has been carried on the entire week. Soil moisture conditions are favorable for establishing the stand. Seed is now attempting to emerge for most of the deciduous species planted this spring. Heavy crusting of the soil has taken place and emergence is extremely difficult, particularly so where uniform germination has not taken place. Leaf growth on all trees is very slow this year.

Horticulture: Planting of fruit trees was finished during the week. A limited amount of spring pruning has been done. It now appears that there will be more winter or drought injury than was expected. Much wood that looked alive a few weeks ago is failing to start growth. It appears that there will be a heavy bloom of plums and plum hybrids. Chinese cherries and some ribes species are already in bloom, as are also some of the new apricots. Hand crossing with grapes has been in progress in the greenhouse.

The second planting in the acre garden was put in during the week. The first planting is up with a good stand. Asparagus and rhubarb are producing heavily at the present time. Ornamental shrubs and trees are leafing out well. Double flowering plum and Chinese apricot are in full bloom. Early tulip beds are blooming nicely. The lawns are in better condition than for many years past.

Agronomy: The past week has been favorable for all field work. There was more sunshine during the week than for the past two or three months. Small grain is now up to a good stand. Plots have been plowed for corn.

Steers are being delivered today for the grazing experiment.

Maximum temperature, 76°; minimum, 38°; precipitation, 0.21 inch.

BELLE FOURCHE:

Clear, warm weather, favorable to plant growth prevailed most of the week. The last day was abnormally hot, the maximum temperature being equal to the highest of record for the first half of May. A heavy soil crust continues to interfere with the emergence of the various crops, including small grain, but otherwise all vegetation made unusually good progress. Growth of grasses and alfalfa was exceptionally vigorous. Winter wheat on fallow also advanced rapidly, but winter grain on other cultural treatments is recovering much slower from drought injury during the fall and winter and remains rather backward.

Soil samples taken May 6 show moisture to be present in the soil to a depth 12 to 14 inches on corn stubble, spring plowed, and fall-plowed land. Wheat stubble ground to be summer fallowed in 1940 is wet to a depth of 18 to 20 inches, but land summer fallowed in 1939 contains no more moisture than fall-plowed land.

Maximum temperature, 94°; minimum, 37°; precipitation, trace.

ARCHER:

The weather during the first three days of the week ending May 11 was cool, windy, and dry and during the last four days it was warm and dry Where soil moisture was sufficient plant growth was rapid, but winter rye and crested wheatgrass have suffered during the last three days. Spring-seeded small grain crops are showing green. Trees generally are coming into leaf.

Station operations consisted of cultivating trees and the plots to be seeded to corn and potatoes. All corn ground in the experimental field was tilled, and the planting of the corn plots was started May 11.

Director W. L. Quayle of the University of Wyoming, Matt Koski, Electrical Engineer of the University of Wyoming, and Kenneth Fiero and Earl W. Cowley of the Soil Conservation Service were station visitors.

Maximum temperature, 78°; minimum, 35°; precipitation, 0.

NORTH PLATTE:

Monday and Tuesday were cloudy and cool, and fair and warm weather prevailed during the remainder of the week. No precipitation has been recorded to date in May. This has been one of the driest springs on record, and little more precipitation has been received than was recorded in the spring of 1934. Wheat on stubble is drying up, and there is a marked border around the edges of these plots. There is not so good a stand of wheat after corn, and on these plots the crop is making some growth. Wheat after fallow is still looking good although there is not enough moisture to carry it more than a week or two. Spring small grains are making satisfactory growth although there is a weed growth on the oats plots that were injured by frost the middle of April.

The field work of the week consisted of preparing land for corn, duckfooting sorghum stubble, and mowing corn stalks on the basin listing experiment in which wheat was seeded last fall.

Maximum temperature, 82°; minimum, 37°; precipitation, none.

AKRON: (Period April 27 to May 11)

The rain mentioned last report drizzled on to total 0.50 inch. This brought April's amount to 1.49, which is 0.62 inch less than the average. Rotation plots intended for fallow became sufficiently weedy to indicate initial working which was done May 3 and 4. There was no dead thistle debris that had to be macerated by a prior disking. Rotation winter wheat was finally given up, and the plots were reseeded May 6 to Komar spring wheat. In some cases there was up to 50 percent stand, but these were also reseeded to thicken the ground cover. Fall-plowed plots intended for corn were spring-tooth harrowed. Cereal variety roadways were trimmed and the roads duckfoot cultivated. Rotation roadway trimming is progressing. Tractor and peacock machine or duckfoot cultivator have been busy much of the time weeding and conditioning station land soil surfaces.

Group of Soil Conservation Service officers from Denver and Sterling, and A. K. Hepperly, Agricultural Agent for the Burlington Railway, called.

April 27 - May 4: Maximum temperature, 85°; minimum, 31°; precipitation, 0.50 inch.

May 4 - May 11: Maximum temperature, 82°; minimum, 37°; precipitation, trace.

COLBY: (Week ending May 12)

This was a generally pleasant and dry week. It was fairly windy with some soil blowing on Sunday. Rain is beginning to be badly needed. Much of the heavy wheat, which is now jointing and is up to 18 inches high, is showing brown spots due to a shortage of moisture.

Pale western cutworms are destroying many fields of wheat in the stubble, late wheat on all kinds of seedbed preparation, and many barley fields. They are present in rather large numbers and are not over half grown at the largest, so they will probably be working several weeks yet. They are rapidly thinning out the already very thin stands on the plots on this station. They are also killing out patches on some of the [illegible] small grain plots.

The late winter wheat is also very weedy. It probably would not have produced a crop had the cutworms left it alone. Pastures are green, but the grass is not making much growth. The station pasture now has from a fourth to a half stand of buffalo grass all over and is remarkably free of weeds. Pale western cutworms are present even in the pasture.

The blow furrows are being leveled preparatory to doing the deep tillage for most of the fallow plots this coming week.

Maximum temperature, 83°; minimum, 40°; precipitation, none.

HAYS:

Good local rains have occurred within this and adjoining counties, but all have missed the Experiment Station except for a light shower which resulted in 0.15 inch on the Dry Land Project. It was reported yesterday that the ground is still too wet for tillage work in the north and south parts of the county.

In this vicinity the pastures and small grain crops are beginning to show need of moisture. The lower leaves of the oats are now brown, and some of the lower leaves on the barley and winter wheat plants are turning brown.

Despite the fact that the crops need rain, the winter wheat, which is very thin as previously stated, has made some growth during the week. It is beginning to stalk and varies from 2 to 8 inches high. The average height is around 3 to 4 inches. On the burned-off and stubbled-in plots, the plots having the best stand, the wheat is now wilting more than elsewhere and has the appearance of really suffering from drought.

The Canada field peas have failed to produce any branches, resulting in a very thin growth. They are now from 4 to 8 inches high and are beginning to bloom.

During the week soil moisture determinations were made on several plots and considerable cultivation was done for the destruction of weeds. Fallowed plots 8 to 17, inclusive, in Block 8 of Field D received their initial tillage May 10. These plots were covered with a thick growth of Russian thistles about 3 inches high. Fallow plots 1 to 7 in the same block, which received their initial tillage in the fall, were tilled for weed destruction.

The annual meeting of County Commissioners and County Bindweed Supervisors from Western Kansas counties was held on the station May 9 and 10. The attendance was about 300.

Maximum temperature, 88°; minimum, 41°; precipitation, 0.15 inch.

GARDEN CITY:

Temperatures were quite pleasant and wind velocities not excessive this week. Dust occurred on only one day. The barley was benefited considerably by 0.65 inch of rain. It is jointing and that on fallow is farther along than that continuously cropped. Brown spots are beginning to show in some of the fields west of here, due to the lack of moisture.

Field work consisted of splitting ridges and cultivating plots which were weedy. A group of N.Y.A. boys have been working here for some time, and part of this week was spent planting flowers near the office.

Otto E. Wenger, Bureau of Entomology, was a station visitor.

Maximum temperature, 88°; minimum, 45°; precipitation, 0.65 inch.

TUCUMCARI:

Rain threatened through several cloudy, calm days, but only 0.09 inch was received. To close of April 2.34 inches was received, compared with normal of 2.84 inches for this four-month period. The surface of fields is dry, but owing to lack of high winds the moisture from some 4 inches of surface to some 2 feet from surface still remains favorable. No planting is being done in this vicinity. Ranges are fair, but rain is needed.

Wheat in the southern part of the county is daily offering less promise, with worm damage continuing.

Work included field cultivation of many plots and some increase land, spring plowing, spraying evergreens which were severely infested with spiders, late pruning of shade and windbreak trees, and cultivation and hoeing of tree rows, orchard, and vineyard.

Maximum temperature, 95°; minimum, 44°.

DALHART:

A rain of 1.59 inches which fell Tuesday evening in two rather hard showers has temporarily at least ended the drought. The distressing feature of this rainfall was the fact that it was a general rain but only rather small local areas were supplied with more than a quarter to half an inch. In certain areas upwards of 2 inches fell. These areas were small in each case. We were in the midst of a cloudburst spot that covered some 2 by 6 miles.

Plowing of land for sorghum testing was started on Monday. It was delayed until the latter part of the week because of the rain. There now appears to be ample moisture to last until the spring plowing can be done. Previous to the rain the soil turned over fairly mellow but dry.

It was possible to clean out a drainage ditch in the north field immediately after the rain. This ditch fills up rather rapidly each spring during the blow season.

Cultivation with the springtooth harrow was started on the various tree plantings. Even in the tree plantings the weeds have gotten established earlier than usual this spring. The reason for this is apparent when we consider the difference in wind velocities for this spring either in comparison with the immediate preceding years or with a 33-year average For instance the average wind velocity for the first 10 days of May for 1940 is 5.0 m.p.h., whereas the 33-year average is 8.7 m.p.h. for the same period.

Maximum temperature, 94°; minimum, 43°; precipitation, 1.59 inches.

BIG SPRING:

Although some good rains have been reported in neighboring counties Howard remains dry. The total for the first four months of the year is 2.12 inches as compared with a normal of 4.06 inches for the same period, or slightly over 50 percent of the long-time average.

The maximum temperature jumped to 105° on May 4, an unusually high maximum for this time of the year; this was followed by two more days of unusually warm weather, which in turn were followed by a norther. The pastures remain as brown as they were in mid-winter and will remain so until a good rain is received.

Station work has consisted of staking cooperative and D.L.A. fields in preparation for planting, knifing beds in increase fields, and watering shrubs and trees.

Maximum temperature, 105°; minimum, 48°; precipitation, 0.

WOODWARD:

High temperatures at the beginning of the week were succeeded by cooler conditions, showers, and clearing weather at the close. Local rainfall was relatively light; however, moderate precipitation was reported from scattered points in this vicinity. A maximum of 102° on the 5th exceeded former station records this early in May.

Peanuts and cotton plots in the D.L.A. field were prepared and planted. Spring plowing for sorghums and in the long-term grass rotation series has been completed. Winter rye for green manure was also turned under. Fall plowing received a cultivation for control of weeds. Hot winds caused some firing of wheat, oats, and barley in the Cereal Project. Early Blackhull and several other wheat varieties are beginning to head. The May 1 date of planting Hegari emerged with satisfactory stands.

A number of lawn grass strains of buffalo and bermuda grass were transplanted on the campus for observation. First irrigation of lawns, nurseries, and trees is practically finished. Chinese elm seed has been planted in the nursery. Clean up work of the perennial nurseries also is in progress. Iris are now blooming profusely, and vegetables and tomatoes are making rapid growth.

In connection with grass breeding, a number of regional strains of buffalo grass have been selfed and crossed. Certain Poa material has also been selected for crossing. Isolated plants of Eragrostis Curvula surviving the winter under dry-land conditions have been transplanted for further winter hardiness studies.

Horticulture and landscape educational meetings attended by county agents, home demonstration agents, and extension specialists were held at the station May 6 and 7.

Maximum temperature, 102°; minimum, 48°; precipitation, 0.20 inch.

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REPORT FOR THE WEEK ENDING MAY 18, 1940.

HAVRE:

Cool temperatures prevailed during the week, accompanied by cloudiness and threatening showers on several days, however, only 0.02 and 0.01 inches of precipitation were received on the 16th and 17th, respectively.

Corn was planted in the D. L. A. rotation field and the corn breeding project. Other routine dates of planting were also made. Alfalfa and grasses in the D. L. A. date of seeding project were cultivated. The first soil moisture samples were taken, good moisture penetration being noted in most plots, although the top soil is already becoming dry.

General farm work consisted of duckfooting the fallow strips in the contour strip field. The terraces that were made in this field were seeded with a mixture of wheat and crested wheatgrass. One of the irrigated alfalfa fields that was plowed up earlier was seeded with wheat. This field will be reseeded with alfalfa next spring.

Number brands in the cow herd were clipped and the yearlings number branded. The entire herd is now being grazed in the station pastures, where they will remain until they are moved to summer range. On the grazing lease in the mountains the grass is coming nicely but is about three weeks later than the native grass at the station.

Earl Davis and Fred Butcher of the U. S. Entomological Laboratory of Bozeman, arrived the latter part of the week to make observations on the survival of grasshopper eggs in the area.

Maximum temperature, 78°; minimum, 33°; precipitation, 0.03 inch.

JUDITH BASIN:

Weather during most of the week was cloudy and cold. On only one morning was the minimum above the thirties.

Field planting and plowing continued throughout the week. Spring plowing for corn and flax in the rotations has been completed, and planting will begin during the next week.

A group of 4-H and F.F.A. boys and a few farmers from Stanford together with Mr. Harold Dussenberg, Judith Basin County Agent, and his assistant Mr. Carl Peterson, visited the Station Friday afternoon. Considerable interest was shown regarding the pasture experiments, grass seedings, and various tree projects.

Emergence of spring sown grains is uniform and satisfactory to date.

Maximum temperature, 73°; minimum, 29°; precipitation, 0.17 inch.

HUNTLEY:

Soaking showers at the beginning and close of the week appear to be sufficient to wet down recently prepared seedbeds and insure germination of corn and other late-sown crops. Alfalfa and grasses planted two weeks ago have germinated and were trying to break through crusted surface soil without much success until moisture came to relieve the situation. The week as a whole was rather cool, the minimum temperature for the period being below freezing. Some frost injury to garden crops and young sugar beets was reported from nearby farms but no serious loss was expected.

Stockmen operating both north and south of the Yellowstone River report the range as "made" for the year as a result of the week's precipitation, with ample grass assured on both summer and winter pastures. Water holes are also moderately well filled.

Field work consisted of planting corn, and cultivating seed alfalfa, alleys, and fence lines. Hogs were weighed and placed on the various pastures.

Maximum temperature, 88°; minimum, 30°; precipitation, 0.90 inch.

SHERIDAN:

Weather conditions over the week were quite variable. Maximum temperatures ranged from unseasonably high over the first two days to rather low on some days in the last half of the week. Light frost occurred on two days, with some damage to fruit blossoms apparent. There was a light shower following the hot weather the first of the week, with intermittent light showers again the 17th, but there was no precipitation sufficient to be of any benefit to crops. Wind movement was high.

Crop growth continued good, but tillering of grain is greater in some instances than probably is desirable unless there should be heavy rain later on. Level planting of corn, including the rotations and varieties, was completed.

Mr. Geo. W. Boyd, Crops and Soils Specialist for the Extension Service, was a visitor during the week.

Maximum temperature, 90°; minimum, 31°; precipitation, 0.47 inch.

DICKINSON:

Cool weather followed the heat wave of Saturday when the temperature reached 90°. Two good showers which amounted to 0.79 inch improved growing conditions. Light frost was recorded on the morning of the 15th, but no effect was noted on vegetation.

Plowing for corn was completed, and the rotation plots are being planted today.

Early blooming plums opened the first of the week, and now most varieties are in full bloom. There was very little winterkilling among the fruits, and most varieties are heavily laden with blossoms.

Some additional plantings were made in the garden. Good stands of early planted vegetables have emerged.

Visitors included Warren Whitman, Department of Botany, North Dakota Agricultural College.

Maximum temperature, 90°; minimum, 29°; precipitation, 0.79 inch.

MANDAN:

Arboriculture: Lining out of coniferous seedlings has been continued during the week, and is now nearing completion. Seedling growth is slow on all species owing to the cold condition of the soil. Heavy crusting of the soil continues, and emergence of seedlings is difficult, except where sufficient pressure is present to lift the crust in blocks of several square inches in size.

Horticulture: Perennial flower borders were renovated and replan[illegible] with newer varieties. Several new plots of perennial flowers were laid out west of the greenhouse and planted. Most of them are hardy varieties which survive without protection, but some semi-hardy ones were also included. Lawns were mowed and roads hoed and cleaned. Early tulips have

been in bloom for a week. Spirea arguta, Ribes aureum, and Prunus triloba are in bloom at the present time.

Agronomy: Field work was delayed early in the week by rain that fell on the 12th and 13th. The week was cool and cloudy.

Corn was planted in the rotations on the 17th, the average date.

Crested wheatgrass and other grasses have made a rapid growth. The highest temperature of the season occurred on the 11th. Frost on the morning of the 15th did not damage crops to any extent.

Maximum temperature, 93°; minimum, 29°; precipitation, 0.85 inch.

Cooperative Grazing Experiment: The 85 yearling steers that arrived at the pasture on the 11th were branded, weighed, and started on the various pastures. They averaged 439 pounds per head.

Pastures are all in excellent condition for grazing. While the crested wheatgrass is in good condition for grazing at present, it is likely to soon get ahead of the cattle. The grass is now 6-10 inches high.

Native vegetation is in good condition for grazing, but has not made as much growth up to this time as during some other years. Blue grama grass is green, but has not made enough growth to furnish grazing Carex filifolia is practically mature.

BELLE FOURCHE:

The weather was cool and unsettled most of the week. A few light showers were received, but they were not heavy enough to soften the soil crust. Only 0.36 inch precipitation has been recorded during May to date, and strong winds nearly every day have caused abnormal drying of the soil. Vigorously growing crops are rapidly depleting the limited supply of soil moisture, and alfalfa and grass are on the verge of suffering from drought.

Field work included plowing and preparation of seed beds for corn, and planting of corn. The surface soil on all cultural treatments dried so quickly that considerable corn was planted in dry soil, and good stands will not be obtained until after a beneficial rain is received. Alleyways were cultivated.

Maximum temperature, 81°; minimum, 33°; precipitation, 0.34 inch.

ARCHER:

The weather during the week was cool, and until the afternoon of May 16 it was also dry and windy. Two showers, totaling 0.58 inch, occurred May 16. This precipitation revived the winter rye, which is heading, and the crested wheatgrass. It will be of aid to corn that had been planted and make conditions more propitious for further planting. Earlier seeded spring crops are in good condition.

During the week the corn rotation plots were seeded and about half of the corn for grain in the dairy field was listed. Ewes and lambs were weighed and turned into the experimental pastures.

Director W. L. Quayle was a station visitor.

Maximum temperature, 84°; minimum, 31°; precipitation, 0.67 inch.

NORTH PLATTE:

Sunday was the warmest day of the year. Temperatures of 90° and higher were reported in the State. The highest wind velocities for the year were recorded on Monday and Tuesday. The high winds and dust made field work very disagreeable on those days. A light frost on Tuesday

night killed the tips of the leaves of the small grain and froze the leaves of the potatoes which were emerging. The temperature was not low enough to do any serious damage.

The first rain of the month fell Thursday and Friday nights. The precipitation recorded Thursday was the most for any 24-hour period during the past nine months.

The winter wheat on stubble is severely fired and will not make much of a crop even with normal rains. Some of the plots of spring small grain are showing the effects of the lack of moisture. Rye is heading and is less than 3 feet in height. The stands of the rye in the green manure rotations are poor and will not add much green material to the soil.

The corn on the D. L. A. plots was planted during the week. There was enough moisture in the soil of most plots for emergence, but some plots were hard and dry and little moist soil was turned up by the lister.

Doctor McPhee of the Bureau of Animal Industry visited the station during the week.

Maximum temperature, 90°; minimum, 28°; precipitation, 0.60 inch.

AKRON:

This section experienced over the second and third days what was anticipated and feared all winter and early spring; unrestricted northwest-wind soil blowing. Monday was especially bad with visibility cut to less than half a mile. Wind movement finally settled down to a generally westward drift Thursday to continue through Friday. By afternoon a storm cloud approached from the west extending from horizon to horizon in the very face of this westward wind drift. This is reported as producing rain in copious amounts up to and over the immediate locality about Akron. At the station a drizzle continued for an hour and a half. This appears to have been a fine general rain of consequential quantity over a wide section. Generally this was timely. Reports are that winter wheat that had approached the jointing stage in Yuma County, immediately to the east, had begun to burn. Spring grains generally had but barely emerged. In fact they never adequately tied-down the surface soil, and there has probably been more blowing-out of barley than has been experienced in many years past. This type of grain on the station is in good condition to produce normal yields but on short straw. Possibly due to the generally cool weather, weeds have not become dominantly dangerous in these grains. Winter wheat that had emerged last fall finally passed-out as reported. This is a phenomena in winter wheat production that has been observed before. It would seem that spring demands reactivated winter wheat growth, and failing to get sufficient moisture to effect that, the crop is one of the weakest among the adapted types.

Sod grasses are again dominated by annual weeds, several progressing to heading stage during the immediately past dry time.

Maximum temperature, 86°; minimum, 33°; precipitation, 0.85 inch.

COLBY:

An almost all day and all night rain yesterday, which amounted to more than an inch, has brightened crop prospects considerably and wet the soil for row crop planting. It is hoped that it will decrease the cutworm population materially.

The long period without effective rainfall had checked the growth of winter wheat and the spring small grains as well as pastures. In fields where the growth of wheat was fairly heavy many burned spots began to show,

and in some instances heads began to emerge on the stunted plants. The spring small grains were beginning to wilt, and the lower leaves were turning brown. Pale western cutworms were still thinning stands in many barley and wheat fields.

The plowing of the fallow plots was finished before the rain. Where weed growth was fairly heavy the soil was barely moist at the depth of plowing. Where the ground was clean the ground turned up fairly wet. Pale western and other cutworms were noticed on all the small grain stubble plots at the time of plowing.

Governor Ratner of Kansas, accompanied by Mr. Ljungdahl of the State Tax Commission, visited the station Friday.

Maximum temperature, 93°; minimum, 29°; precipitation, 1.12 inches.

No damage was apparent from the 29° temperature.

HAYS:

The first few days were dry, hot, and windy. The last three days were partly cloudy and showery, the week ending with a good rain.

During the week winter wheat has made some noticeable growth. It now varies from 3 to 8 inches high. Weeds in the wheat have also made good growth and in many places are as high as the wheat.

Barley, oats, and spring wheat suffered considerably from drought and made very little growth, but these crops look better today since the rain.

Winter rye, which made only a spreading growth, was suffering seriously from drought when it was plowed under May 15. Canada field peas, which, as stated in last weeks report, produced no branches, were also suffering from drought. The peas were thin, about 8 inches high, and blooming. These were plowed under May 15. The ground on both the rye and pea plots broke up in good condition, although it was dry to the depth of the furrow slice.

The M plot of the M. F. fallow series and the D plot of the C. C. series and some other fallowed plots were plowed May 15.

A number of plots were cultivated during the week, and soil moisture determinations were made on a group of wheat and fallow plots.

Maximum temperature, 94°; minimum, 32°; precipitation, 0.89 inch.

Light frost May 15.

GARDEN CITY:

The largest single rain since September 12, 1938, amounting to 1.75 inches, fell Friday night. It came rather slowly and there was very little run-off. Heavier rains were reported in town and farther west. This rain was preceded by 0.40 inch on Thursday night, and two other light showers earlier in the week. The total was 2.42 inches. The total thus far this month is 3.07 inches; the average for the entire month is 2.63 inches. Spring small grains and other vegetation are making rapid growth.

One "bad" dust storm, which was followed by a rain, rolled in from the northwest Monday evening.

Field work consisted of Forkner cultivating plots which required leveling and taking soil moisture samples on M. C. wheat plots.

Station visitors were Kling Anderson and Alvin Law, Kansas State College.

Maximum temperature, 92°; minimum, 40°; precipitation, 2.42 inches.

TUCUMCARI:

Crop and range prospects have steadily and gradually depreciated the past week, just as in preceding weeks. Precipitation of 0.20 inch this week brought the total since March 5 to 1.02 inches, a period of about 2½ months. Threatening clouds were accompanied by rain in some nearby localities. Temperatures were moderate, and wind movement was normal.

The taking of soil samples, late pruning, and cultivation and hoeing of trees and shrubs comprised the week's work. All fields that were early spring listed show some weed growth, indicating it may be necessary to throw in lister ridges before rain is received. No planting has been done in this immediate vicinity.

All station listing was performed with damming attachments, as in the previous three years. Since listing, only 0.37 inch precipitation has been received, compared with a normal expectancy of 2.24 inches for this period. As was the case in 1938, damming of lister furrows has so far proved futile.

Maximum temperature, 93°; minimum, 48°.

DALHART:

Two light showers during the week furnished only 0.25 inch. A shower which fell last evening was general but like the rain of some 10 days ago was very spotted in distribution. One gauge approximately 15 miles north registered 5.1 inches in a little over an hour. The areas with large downpours were local in extent.

Field work during the week has largely been spring plowing, harrowing, and reworking some tree plantings to kill goatheads (Tribulus terrestris).

The spring-seeded cereals have not put forth sufficient growth to warrant any yield expectancy.

Maximum temperature, 91°; minimum, 46°; precipitation, 0.25 inch.

BIG SPRING:

The prolonged drought was broken when spotted rains were received over the county May 16, at which time the Station received 0.97 inch. This rain varied from a light shower in some parts to 3 inches in others. Station planting can be started now, although more rain will be required before crops can make much growth.

The first variety-date planting of sorghums was made May 16 in dry soil. Just as the last plot was being planted, it started to rain, so it is now hoped that stands will be obtained from this unusual method. This will maintain the regular schedule in variety-date planting. Other work has consisted of treating seed of cotton varieties with Ceresan, knifing increase fields, and hoeing scattered weeds.

Station visitors during the week included E. W. Johnson of the Woodward Station; Mr. Roberts, State Forester of Nebraska; Mr. Webb, Texas State Forester, and Mr. Olson of the Shelterbelt division.

Maximum temperature, 93°; minimum, 51°; precipitation, 0.97 inch.

WOODWARD:

Dry weather prevailed during the week until Saturday when 0.31 inch of precipitation was recorded at the 8 A.M. observation with steady rain continuing. Scattered thunderstorms occurred on several days but local rainfall was unimportant. Temperatures, however, have been moderate and wind movement light.

Main roadways in the experimental fields were graded and alleys cultivated. Rye has been rogued from various winter wheat plots. Ridges were leveled on the S.C.S. farm, and another field was disked and basin tilled. Spring oats, barley, flax, and winter wheat varieties in the cereal Project are nearly all headed. Wheat on well prepared fallow has suffered relatively little from drought thus far, whereas on continuous methods considerable firing is noted.

Routine dates of planting were continued in the vegetable garden and replacements made in the tomato experiments. These plots were also irrigated and cultivated. Hybridization of grapes was begun. Seed-bed plantings of trees and shrubs were continued, and rooted greenhouse cuttings were lined out in the nursery. Pruning hedges, hoeing, and other clean up work on the campus was accomplished.

In the forage project, a block of black grama grass has been seeded for increase. Certain sweetclover varieties have been harvested. A number of buffalo grass crosses were made and similar work was started with blue grama grass strains. Prior to the present writing new grass plantings were badly in need of moisture, especially on sandy land. A class of Botany students from Fort Hays College, Kansas inspected grass plantings and range work at this station.

Maximum temperature, 92°; minimum, 42°; precipitation, 0.31 inch

LAWTON: (Report for two weeks ending May 20)

Weather conditions during the past two weeks have been mostly favorable to the growth of small grains with just barely enough moisture to keep the crops in a reasonably thrifty condition. Practically all the wheat has been in full head since the 15th. Winter oats and winter barley are approaching maturity quite rapidly. Winter barley is extremely uneven in height and development. Only a small percentage of the heads are of normal size, the remainder being extremely small and on very short plants. A few fields of winter barley, mainly Early Missouri Beardless, in the south eastern part of the county are fully matured and harvest is in progress. Plots of spring seeded oats indicate a better yield than the winter seedings. The oats crop as a whole throughout the county will be light. Thin stands prevail and the crop indicates a shortage of water on land that was previously cropped.

Sorghums replanted in Field A emerged to good stands on May 8. Considerable replanting was necessary in the Chinch Bug Sorghum Resistance project, and only fair to very poor stands were obtained because of seed that would not germinate satisfactorily. Wherever it was necessary to use 1939 seed germination was generally poor. The nursery planting in this project was planted on the 14th and 15th. Station plots of cotton were planted May 14 and 15 and the State Cooperative Variety test was planted on the 17th. The first planting in the crop-weather cotton project was also planted on the 15th. Very good seed beds with optimum surface moisture obtained on all plantings, but cold weather since that time has retarded emergence to some extent, stands so far being quite irregular. Cowpeas planted on the 11th emerged to full stands within four days.

The root fungous diseases that were so destructive to sorghums in the seedling stage in 1939 are prevalent again this year. Presence of these diseases has been observed within two weeks after planting in all instances this year. In 1939 high temperatures prevailed when the seedlings were attacked. In 1940 the temperatures have not been above normal. Dr. K. Starr Chester, head of the department of Botany and Plant Pathology,

A. & M. College, Stillwater, Okla. made an extensive collection of plants for culture identification on the 13th.

Maximum temperatures during the past two weeks averaged about 82°, ranging from 76° to 96°. Minimum temperatures ranged from 47° to 60°. The highest wind velocity recorded this year occurred on the 18th with an average velocity of 22 miles per hour for 7 hours. May precipitation to date consists of 0.95 inch received on 4 dates. Dr. G. A. Wiebe, Washington, D. C. ; Mr. I. M. Atkins, Denton, Texas; Dr. F. A. Fenton, Dr. K. Starr Chester, and Messrs. C. B. Cross and Frederick T. Dines, Stillwater, Oklahoma.; and Messrs. Geo. Harrison and L. B. Nourse, Shafter, Calif., were station visitors.

PENDLETON: (Report for period April 28 - May 18)

Plowing for fallow has been completed in this section of eastern Oregon. The completion of plowing was delayed about 3 weeks by above normal rains in March and April. Winter wheat in most sections is either heading or fully headed. Stands for the most part are very good with fewer weeds than usual. A good crop of winter wheat should be assured if normal temperatures prevail until the wheat is filled. There is sufficient moisture in the soil to mature a crop without further rains. Spring wheat wil need rain to assure a good crop. Moisture and nitrate samples taken during the past ten days show an average of 23 percent moisture in 5 feet of soil or about 16 inches of water stored in the 5 feet. Stubble land and fallow have about the same amount of water stored.

Corn planted on April 30 has emerged with good stands, and new seedings of alfalfa also have fine stands. Some of the grasses in the forage nursery have been harvested for forage yields. In the grass trials Big Bluegrass (Poa ampla) continues to be the outstanding grass. Seed of this grass was released to a few farmers in the fall of 1938, and their success with this grass has aroused much interest among farmers.

Mr. L. E. Harris in charge of the weed program for the State has spent considerable time here this month working on the nightshade problem in canning peas. As a result of some trials on early sown peas in the Stanfield section, several farmers in this area are preparing to spray their fields for nightshade using Sinox with ammonium sulphate as an activator. Visitors included Wm. A. Schoenfeld, Dean and Director, Oregon Experiment Station; Dr. D. D. Hill and 20 students in Farm Crops, Oregon State College; a group of 6 AAA range examiners, and Sam Sloan, Agronomist S.C.S. Spokane, Wash.

Maximum temperature, 89°; minimum, 29°; precipitation, 0.16 inch

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REPORT FOR THE WEEK ENDING MAY 25, 1940.

JUDITH BASIN:

The week was much too dry for the continued normal growth of grass in the pastures and solid seedings of the forage plots. Rain is badly needed if pastures are to progress satisfactorily and fair yields of hay obtained or harvested. Even during the drought years of 1936 and 1937 pastures and close seeding of grass suffered less during the month of May.

Stands of spring-sown crops continue to advance and winter rye has already begun to head. Corn, potatoes, and miscellaneous plantings have been completed during the week. Plowing of fallow blocks has continued and should be completed during the coming week.

The week as a whole was cool with only a trace of precipitation and less wind than usual.

Station visitors include Professor A. H. Post, Dr. A. H. Patten, Dr. W. Carlson and Mr. L. A. Clark - all from the state college at Bozeman - and Mr. Floyd Larson, Range Examiner of the Soil Conservation Service, with his party of five.

Maximum temperature, 78°; minimum, 35°; precipitation, trace.

HUNTLEY:

Temperatures throughout the week were generally favorable for the development of small grains, alfalfa, and grasses. Winter grains and perennial crops are now beginning to reflect the soil moisture conditions in the various plantings, which conditions were anticipated as a result of the routine soil moisture determinations. Winter wheat and rye on fallow and cornland continue to make an excellent growth, whereas continuously cropped plots are beginning to slow up, and in cases of thin, weedy stands, the crop looks dry. Heavy stands of crested wheatgrass, especially the younger plantings, also show some signs of drought.

Spring grains and flax, with the most uniform stands obtained in several years, are making excellent progress. Corn planted a week ago is coming up, but emergence is not yet completed.

Field work was devoted principally to weed control. Corn plots were harrowed, and the cultivation of row alfalfa, roads, and alleys was continued. Corn varieties and strains were planted in the hybridization and yield test blocks, and soybeans were seeded in a variety test.

Director Clyde McKee, Dr. Schlehuber, and Dr. Afanasieve of the Montana Station were among the station visitors.

Maximum temperature, 83°; minimum, 34°; precipitation, 0.03 inch.

SHERIDAN:

Fair weather prevailed over the week, with about average temperatures, and no rain of consequence. Crops that have made considerable growth, such as alfalfa and winter wheat, are beginning to show some signs of wilting in places. Growth generally continues good, however. Flax emerged the first of the week with fair to thick stands, except on spring plowing, where the most of it probably will not emerge until it rains. Corn planted last week is just beginning to emerge. The remainder of the regular plantings of corn (listing), garden plants received from Cheyenne, and soybeans were planted.

Winter rye is heading, that in the varieties being now fully headed, and winter wheat is in the boot. Crested wheatgrass also is beginning to head.

Mr. Oscar K. Barnes of the Soil Conservation Service, Laramie, was at the station the 23rd.

Maximum temperature, 77°; minimum, 35°; precipitation, 0.28 inch.

DICKINSON:

Cool and dry weather permitted field work all week. Temperatures were low to moderate through the day, and the nights were cool with light frost on the 24th.

Grains and forage crops made good development. Grains generally show good stands which are beginning to thicken by stooling. Grasses in old stands or thick seedings began to show the need of moisture.

Flax and millet in the rotations and the early seeded flax on crested wheatgrass sod all have excellent stands. More flax has been seeded in the district than for several years.

The cool weather has resulted in the gradual opening of blooms of crabs and apples and a long flowering period for plums, other fruits, and ornamentals. Apples are now in full bloom with plums just past that stage. Most varieties are heavily laden with flowers right out to the tip of the branches. Flowering plum and the spiraeas are making the best showing for several years. Common, Persian, and French Hybrid lilacs are just coming into full bloom and promise the best display for some time.

To date no young grasshoppers have been noted. Ten days earlier in 1939 grasshoppers were large enough to be damaging grass and grain seedlings and the spreading of poison had begun.

Precipitation of 1.01 inch to date in May is less than half the normal for the month.

Maximum temperature, 75°; minimum, 31°; precipitation, 0.01 inch.

MANDAN:

Arboriculture: Lining out of coniferous seedlings was completed the early part of the week. Conifer seed beds have been planted. Cultivation of the nursery and roadways with team and tractor is now in progress. Seedling growth still remains slow owing to cold nights.

Horticulture: Hand crossing of plums and other Prunus species has been in progress throughout the week. A few of the Golden currant selections were also crossed and selfed. Weather during the blooming season has been favorable to a good set of fruit. Winter injury will be more severe than at first anticipated, but still light as compared to some other years. Prunus japonica selections from Minnesota were badly killed back. Some of the plums and plum hybrids show evidence of drought injury. Most of the apples and crabs and most small fruits passed the winter without serious injury. Work during the week included repairing the terrace in the south field, erecting a new trellis for grapes, varnishing and lettering stakes, and cultivating orchards.

The third and final planting, including the setting out of tomato, eggplant, and pepper plants was completed Friday and Saturday. The sweet corn breeding nursery including 106 selfed strains and F. crosses was planted during the week. The weather is cool and the growth of vegetables so far is slow and backward. French hybrid lilacs are slowly coloring up in the station groups. In striking contrast the Syringa dilatata is fully

open and makes a fine show with its large loose clusters of flowers in varying pink shades. The Hopa crab in various plantings is a sheet of pink from top to bottom on trees about 25 feet tall. They attract much attention from station visitors. Darwin tulip plantings are now beginning to bloom and promise to be the most successful in years.

Agronomy: The past week continued cool, with some cloudiness, and little precipitation. Corn planting was completed in nursery and seed blocks. Some millet for seed and Sudan grass for feed have been planted. Plowing for feed crops in field P has been completed. Small grains are growing well and improved greatly during the week.

Cooperative Grazing Experiment: Steers appear to be doing well on their pastures. There is an abundance of feed in all pastures. Crested wheatgrass is in excellent condition for grazing but will soon be too far ahead of the steers.

Maximum temperature, 75°; minimum, 38°; precipitation, 0.04 inch.

BELLE FOURCHE:

Dry weather continued for the fourth consecutive week, but moderate daytime temperatures, cool nights, and low wind movement were favorable to crops. Small grain made rapid growth, but winter rye stubbled in after wheat is suffering from lack of moisture, and grass and alfalfa are beginning to burn. Flax made fair progress, but wireworms are doing extensive damage to this crop, and Russian thistles threaten to smother the thin stands of flax.

Field work included manuring and plowing of fallow, trimming plots, duckfooting roads, and planting potatoes.

Maximum temperature, 76°; minimum, 35°; precipitation, trace.

ARCHER:

The weather during the week ending May 25 was cool with precipitation during the first part of the week. To date the total precipitation during May is 1.07 inches.

The 0.58 inch of precipitation recorded May 17 and the 0.40 inch recorded May 21 and 22 greatly improved the winter cereals and grasses. It was also of aid to spring-seeded crops and put the soil in excellent condition for the seeding of corn.

The seeding of corn, which was delayed a week by wet soil is nearing completion. Tomato and cabbage plants were set out in the garden May 23. The first cultivation of the dairy fields to be fallowed or seeded to late crops will be completed to-day.

Director W. L. Quayle of the University of Wyoming and Mr. H. Clay Scott, Forester of the CCC, Scottsbluff, Nebr., were station visitors.

Maximum temperature, 75°; minimum, 34°; precipitation, 0.40 inch.

NORTH PLATTE:

Cool and fair weather prevailed during the week and no measurable precipitation was recorded. Only 0.60 inch of precipitation has been recorded to date for May. The condition of the small grain has not changed much during the past week. The early varieties of winter wheat are heading, and the early varieties of barley are heading very short.

Young grasshoppers are very numerous, and the spreading of poisoned bait will be started next week in an effort to keep the pests under control.

The rye green manure plots were plowed during the week, corn planting was completed, and alleys were cultivated.

Maximum temperature, 75°; minimum, 35°; precipitation, trace.

AKRON:

Current rainfall is deficient, but cool weather has prevented any manifestation of drought. Early barleys in the variety experiment are heading at a height of about 10 inches, even on fallow. Prospects are still good for enough straw height to permit harvesting. April passed with two-thirds average and May thus far has produced only 1.01 of its expected 2.92 inches.

Cutworms, present all spring, are now in such numbers as to hazard the securing of stands of early emerging corn. They are actively cutting off the emerged beans of the May 1 seeding. They thinned, but not damagingly, some of the oat and barley plots and may have been a factor in the final failure of winter wheat to show the expected stands. Nursery winter wheat is v ry thin and weedy. This is being hand hoed to perpetuate seed supplies. Winter wheat that survived in sufficient stands has now become very weedy with that Russian thistle.

Grasshoppers are again appearing in what promises to be troublesome numbers.

L. V. Toyne, County Agent at Greeley, Charles Giles, Local County Agent, George Henderson, District County Agent Leader, and Rodney Tucker, Extension Agronomist, called during the week. Fred O. Case, and Charles Kinzey of the Denver Office, and B. F. Kiltz of the Amarillo Office of the Soil Conservation Service also visited. A. W. Krofchek of the Cheyenne Horticultural Station called to inspect the fruit and windbreak plantings Thursday.

Maximum temperature, 76°; minimum, 35°; precipitation, 0.16 inch

COLBY:

The week was cool and mostly cloudy with scattered light showers. There has not been any rain of much consequence, but with the soil soaked up from last week's rain, everything has taken on a very promising appearance. Pastures look luxuriant, even though much of the vegetation consists of beggar lice, pepper grass, and tansy mustard. From a distance the late wheat fields, too, look promising, but much of the stand consists of Russian thistle, lambsquarter, and other weeds. Barley and other spring small grains are making rapid growth. The really bright spot in the picture is the wheat that came up last fall and survived the winter. Most of the fields are practically headed at a height of about 2 feet. The heads are of above average length. Of course frequent rains will be needed to carry it through safely.

Corn planting is under way, with some fields up. The acreage will be larger than last year. Sorghum planting has begun also, but will not be in full swing until the first week in June. The cool weather and cold soil have kept many of the over anxious in check. At the station the first date of planting of sorghums is being planted today.

On the DLA plots which are to be in row crop the surface has been tilled with a rod weeder to kill the numerous weeds which have started, except where the outlines call for no cultivation before seeding. The corn plots will be planted the first of the week, the sorghum plots the week following.

Maximum temperature, 80°; minimum, 37°; precipitation, 0.29 inch.

HAYS:

Dry weather has prevailed in this locality. Good rains have occurred around, but all have missed Hays.

Oats are beginning to head at a height of from 4 to 8 inches. Barley is heading at a height of 6 to 14 inches. Winter wheat varies from 3 to 16 inches high. No heads have emerged. All these crops are suffering severely from drought, especially oats and barley. Winter wheat is not suffering quite so much, because of the thin stand.

Maximum temperature. 87°, minimum, 39°; precipitation, 0.06 inch.

GARDEN CITY:

Although there was considerable cloudiness during the week only two traces of moisture were received. Temperatures were rather cool and the wind velocity was low. No dust occurred during the week.

The barley is making very rapid growth and is commencing to head. The prospects for a crop appear to be favorable. The winter wheat in this section is making rapid growth but is later than the barley. Many of the fields of winter wheat and some of the barley which have thin stands have an abundance of thistles, and the chances for a crop on these are small.

Field work consisted of rodweeding and forkner cultivating plots which were weedy, trimming spring small grain plots, and working roadways and alleyways.

Station visitors were M. A. Bell and J. E. Smith from the Woodward station, and D. E. Stephens, Soil Conservation Service, Washington, D. C.

Maximum temperature, 85°; minimum, 41°; precipitation, trace.

TUCUMCARI:

A slow, nearly continuous drizzle over a 30-hour period beginning on the 21st totaled 1.20 inches precipitation. Ranges and crop land over a wide area shared in this moisture, the most general in months.

Preparation of land for planting has been rushed since fields were dry enough to work. Planting will no doubt start Monday. Fallow plots were plowed.

Maximum temperature, 85°; minimum, 45°.

BIG SPRING:

Precipitation totaling 0.89 inch was received on four days of the past week. These rains, like the others, were spotted, covering only small areas. There are still portions of the county which have not received sufficient moisture for planting purposes.

There were only parts of three days when Station planting could be done. During this time cotton varieties, cotton rates, cowpea and soybean varieties, and peanut varieties were planted. Increase fields of Sudan grass, milo, and Ajax were also planted.

The May 15 date of grain and forage sorghums, which were planted in the dust, emerged to good stands after the rain. Other work has consisted of hauling caliche for the drives and hoeing weeds.

Mr. J. M. Jones, Chief of the Division of Range Animal Husbandry and G. W. Barnes, Beef cattle Specialist of the State College are here to aid in obtaining cattle measurements preliminary to closing out the year's feeding experiments next week.

Maximum temperature, 93°; minimum, 53°; precipitation, 0.89 inch.

LAWTON:

Rain, hail, and wind storms lashed, battered, and destroyed crops in many localities of southwestern Oklahoma during the past week. Rains were extremely spotted and variable in amount. Precipitation amounting to 1.02 inches was recorded at the station on four dates. On the 20th, 0.47 inch of rain and hail fell within less than 15 minutes with considerable damage to small grains. In the rotation plots and in the weather-wheat project broken culms amount to approximately 20 percent. In the wheat variety test on the west end of the station broken wheat culms average a little over 5 percent. Winter oats varieties were badly shattered, and there was at least 20 to 25 percent loss in the rotation plots of spring-seeded oats. In the northeastern part of the county there was a total loss of all crops over a large area and extensive damage to buildings.

Three selections of Coker oats on winter seedings and the spring-seeded rotation plots of oats were harvested May 24 and 25. Additional varieties of both fall and spring seedings and increase fields will be mature within 2 or 3 days. Winter barley varieties are also practically mature. This crop will be very light. Plant height is extremely irregular and head development very poor. Winter barley in rotation 196 is practically a failure. Winter barley was apparently unable to recover from the winter and early spring drought. The Barley Stripe disease was very prominent in the Wintex variety this year. Oats yield should be fairly good, although the straw is quite short in most instances.

Cotton plantings made on the 14th and 15th emerged to fairly good stands. A good many seedlings, emerging when the rain and hail fell, were broken or tied to the surface soil by mud, and uniformity of stand is lacking to some extent. The weather continues too cool for cotton and the plants do not have a good color.

About 50 club boys spent Tuesday at the station looking at small grains and engaging in grain judging.

Mr. T. R. Stanton, Washington, D. C. and Mr. V. C. Hubbard, Woodward, Okla. visited the station on the 23rd.

Maximum temperature, 93°; minimum, 52°.

WOODWARD:

Partly cloudy skies, scattered showers, cool temperatures, low evaporation, and light wind movement characterized the weather of the past week. Precipitation in some localities nearby was relatively heavy, but rainfall at the station thus far in May is deficient, only 1.13 inches being recorded to date. With dry weather also prevailing during the last half of April, soaking rains would be welcome.

Winter wheat in the dry-land project is beginning to head rather short with many plots becoming somewhat weedy especially where stands are thin. Recent cool weather appears to have helped winter wheat in general. Considerable volunteer winter rye was rogued from plots and increase blocks. In the Cereal project, early planted sorghum is being retarded by cool temperatures. The taking of heading notes and weeding small grain nurseries is now in progress.

Removing sprouts at the base of grape vines in the vineyard was started and hybridization work continued. Perennial seedbeds have also been planted. Tomatoes are making satisfactory progress and some plants are starting to bloom. Perennial flowers such as Coreopsis, Shasta Daisy, Skullcap, Spiderwort, Oriental Poppies, Daylillies and others are blooming profusely. Aside from late varieties, Iris are about through flowering.

A C. C. C. work crew removed an uneven stand of bermuda grass from the south lawn, refilled the area with new top soil, and transplanted buffalo grass sod at 18 by 18 inch intervals over the area. Rooted plant materials from the greenhouse were lined out on several favorable cloudy days. Greenwood shrub species cuttings have been made and seedbed plantings completed. Weeds were hoed from the testing blocks and windbreaks and experimental hedges were trimmed.

In the regrassing project, selfing blue grama grass strains is being undertaken and observations made in connection with pollination problems. Recent seed increase plantings of weeping love grass and black grama grass have emerged with good stands. Satisfactory stands of various grass plantings in the long-term rotations appear to have been obtained. Sandy low ground north of the dam was drilled to mixed sorghum as a stabilizing cover and for grass to follow next year. A group of ranchers, AAA Committeemen, and others from Roger Mills County inspected regrassing methods and related work at the station on the 24th. Mr. D. E. Stephens was also a station visitor.

Maximum temperature, 89°; minimum, 47°; precipitation, 0.59 inch.

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NOTE

United States Department of Agriculture Circular 563, Relation of the Depth to which the Soil is Wet at Seeding Time to the Yield of Spring Wheat on the Great Plains by John S. Cole and O. R. Mathews was received from the printer May 29. Franks had been furnished for sending a supply of 10 to 50 copies to each station as provided in the scheme of distribution.